

USSR

UDC 576.858.75.095.383

SOLOV'YEV, V. D., and GUTMAN, N. R., Institute of Epidemiology and Microbiology
imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"Characteristics of Hong-Kong Influenza Virus Strains as Interferon Inducers"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 70, pp 652-658

Abstract: Antibody strains were isolated from patients with Hong-Kong influenza during the Moscow epidemic in January and February 1969. Some 46 strains were studied, together with 39 additional strains obtained during the January-February 1970 epidemic. Differences were found among the strains with respect to their ability to induce interferon in mice. Of the 85 strains, 14 from the 1969 epidemic and 10 from the 1970 epidemic were found to be weak interferon-inducers; 29 strains were strong inducers, and 32 intermediate inducers. Three strains with minimum and maximum interferon-inducing activity were studied in greater detail. After 10 subsequent passages on chicken or mice embryos, the differences between interferon-positive and interferon-negative strains gradually disappeared. It is suggested that these differences in interferon-inducing ability among the virus strains are of great practical value as a genetic indicator.

1/1

- 54 -

USSR

UDC 616.988-056:576.858.095.383

SOLOV'YEV, V. D., BEKTEMIROV, T. A., KARAKIYUNCHYAN, M. K., and BEKTEMIROVA, M. S.,
Chair of Virology, Central Institute for Advanced Training of Physicians, and
Moscow Scientific Research Institute of Virus Preparations

"Correlation between Individual Interferon Production and Susceptibility to Certain
Viral Infections"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 70, pp 419-423

Abstract: Individual resistance to disease is apparently congenital and is a function of the ease with which the body is able to activate its defenses against infection. Studies on interferon production in rabbits and mice revealed marked differences in resistance among individuals of the same species. Serum interferon titers ranged from 1:4096 to 1:4,000,000 in rabbits and from less than 1:400 to 102,400 in mice. Mice of the A, CC57BR, and BALB/c lines also exhibited individual peculiarities in serum interferon, but unlike randombred animals, most of the mice of the same line produced equal amounts of interferon. The strongest producers were the CC57BR mice and the weakest the BALB/c mice. An inverse relationship was noted between the intensity of interferon production and susceptibility to rabies fixed virus and Western equine encephalitis virus. The weakest interferon producers, the BALB/c line, proved to be the most sensitive to these viruses. The most active producers, the CC57BR line, were the least susceptible. The randombred and A line mice occupied a middle position with respect to both interferon production and susceptibility to the viruses.

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USSR

SOLOV'YEV, V. D., and BEKTINIROV, T. A.,

Interferon v Teorii i Praktike Meditsiny (Interferon in the Theory and Practice of Medicine), Moscow, "Meditsina," 1970, 272 pp

Translation:	Table of Contents	Page
Foreward		3
Part 1. Formation and action of interferon induced by viruses in cell cultures and chick embryos. Properties of interferon.		
Chapter 1. Formation of interferon in cell cultures and chick embryos		5
1. Interferon forming activity of viruses		5
a) Interferon forming activity of pox viruses		5
b) Interferon forming activity of myxoviruses		9
c) Interferon forming activity of arboviruses		12
d) Interferon forming activity of other viruses		14
2. Factors affecting the intensity of interferon production		15
3. Comparative study of the induction of interferon by viruses in various cell cultures		25
4. Dynamics of formation and secretion of interferon in cell cultures		31
5. Viral blocking of the formation and action of interferon		40
Conclusion		46

1/6

- 117 -

USSR

SOLOV'YEV, V. D., and BEKTIHROV, T. A., Interferon in the Theory and Practice of Medicine, Moscow, "Meditsina," 1970, 272 pp

Chapter 2. The effect of interferon in cell cultures	49
1. Sensitivity of viruses and cells to interferon	49
2. Methods of detecting and titrating interferon	52
3. Study of the sensitivity of some virus-cell systems to interferon	54
Conclusion	65
Chapter 3. Main properties of interferon	67
1. Physicochemical properties	67
2. Species-specificity	73
3. Antigenic properties	79
Conclusion	82
Chapter 4. Interferon production by leukocytes in man and animals	83
1. Interferon production by leukocytes in rabbits and mice	90
2. Interferon production by leukocytes in monkey blood	95
3. Interferon production by suspensions of human leukocytes	97
Effect of the incubation medium of virus-bearing leukocytes on the amount of interferon formed	99
Effect of the concentration of leukocytes in a suspension on interferon production	100

2/6

USSR

SOLOV'YEV, V. D., and BEKTIMIROV, T. A., Interferon in the Theory and Practice of Medicine, Moscow, "Meditsina," 1970, 272 pp

Effect of the reaction of the medium	100
Effect of incubation temperature	101
Importance of the species of interferon forming virus and the size of the infective dose	101
Dynamics of interferon production by human leukocytes	102
Properties of leukocyte interferon	105
4. Interferon production in growing cultures of human leukocytes	107
Conclusion	110
Part 2. Effect of exogenous interferon and stimulators of endogenous interferon on viral infections	
Chapter 5. Effect of exogenous interferon on viral infections	114
1. Effect of exogenous interferon on experimental viral infections	114
2. Clinical tests of exogenous interferon	124
Conclusion	133
Chapter 6. Effect of stimulators of endogenous interferon on experimental infections	135
1. Stimulation of endogenous interferon by using intravenous and other means of introducing viral inducers	135

3/6

- 118 -

USSR

SOLOV'YEV, V. D., and BEKTIMIROV, T. A., Interferon in the Theory and Practice of Medicine, Moscow, "Meditsina," 1970, 272 pp

2. Effect of viral interferon-forming inducers on experimental viral infections	144
3. Stimulation of endogenous interferon by nonviral inducers and its effect on experimental viral infection	147
4. Tolerance, or hyporeactivity, in interferon formation	162
Conclusion	167
Chapter 7. Clinical test of stimulators of endogenous interferon	171
1. Stimulation of endogenous interferon in man and its effect on a viral infection	171
2. Interferon forming properties of live vaccinal influenza virus	177
3. Interferon forming properties of influenza virus A2, partially inactivated by ultraviolet radiation	177
4. Interferon forming properties of inactivated viruses	179
5. Effect of stimulators of endogenous interferon on the adaptability of vaccinal influenza virus	181
Conclusion	187
Part 3. Interferon formation and viral infection	
Chapter 8. Interferon formation in the organism in viral infections and its role in pathogenesis	190

4/6

USSR

SOLOV'YEV, V. D., and BEKTIPIROV, T. A., Interferon in the Theory and Practice of Medicine, Moscow, "Meditsina," 1970, 272 pp

1. Interferon formation in viral infections of animals	190
2. Interferon formation in viral infections of man	192
3. Effect of various factors on interferon production in the organism	194
4. Interferon formation in an immune organism	196
5. Role of interferon in the pathogenesis of viral infections	197
6. Study of interferon formation in the organism and in vitro (by leukocytes) in experimental viral infections	202
a) Interferon formation in experimental influenza	204
b) Interferon formation in experimental ectromelia	208
c) Interferon formation in experimental western equine encephalomyelitis (WEE)	209
d) Interferon formation in the organisms of animals of different ages	211
e) Effect of cooling, internal irradiation, and ACTH on the production of serum interferon in mice	212
Conclusion	213
Chapter 9. Study of interferon formation in man under normal and pathological conditions	217

5/6

- 119 -

USSR

SOLOV'YEV, V. D., and BEKTIHROV, T. A., Interferon in the Theory and Practice of Medicine, Moscow, "Meditsina," 1970, 272 pp

1. Production of interferon by leukocytes in healthy humans of various ages. Appearance of interferon in urine and serum	217
2. Production of interferon by the leukocytes of newborn infants	219
3. Production of leukocytic interferon in patients suffering from leukemia	220
4. Production of leukocytic interferon in other internal diseases	221
5. Interferon formation in children inoculated with smallpox vaccine	223
6. Production of interferon in adults suffering from influenza	224
7. Production of interferon in children suffering from acute respiratory viral infections, and its correlation to the production of leukocyte interferon	228
Conclusion	233
Mechanism of the formation and action of interferon	236
Results and prospects	245
Biography	250

6/6

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UDC 576.858.095.333

USSR

SOLOV'YEV, V. D., MARCHENKO, V. I., DYUYSALIYEVA, R. G., BABAYANTS, A. A., and
FORIDISHEVA, L. N., Institute of Epidemiology and Microbiology imeni N. F.
Gamaleya, Academy of Medical Sciences USSR, Moscow

"Stimulation of Interferon Formation in Producing Cells by Pretreating them with
Interferon"

Moscow, Voprosy Virusologii, No 2, Mar/Apr 70, pp 150-155

Abstract: Pretreating human and chicken leukocytes, fibroblasts of skin muscle tissue of human and chick embryos, human amnion and chorioallantoic membrane of chick embryo with interferon results in stimulation of subsequent interferon production in these tissues. Tissues supporting multiplication of the virus-inducer (Newcastle disease virus) treated with large doses of interferon showed inhibited interferon formation while those treated with small doses exhibited stimulated interferon formation. Either large or small doses of interferon stimulated interferon production of cells not supporting virus multiplication. The stimulating effect reached a maximum after 2 hours, and disappeared after 24 hours. The stimulation and inhibition process of interferon production is species-specific. Stimulation of interferon formation was also observed after pretreatment of the tissues with small doses of the virus inducer.

1/1

- 37 -

1/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--STIMULATION OF INTERFEROGENESIS IN PRODUCING CELLS BY THEIR
PRETREATMENT WITH INTERFERON -U-
AUTHOR-(05)-SOLOVYEV, V.D., MARCHENKO, V.I., DYUYSALIYEVA, R.G.,
BABAYANTS, A.A., POKIDYSHEVA, L.N.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 150-155
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--INTERFERON, LEUKOCYTE, MUSCLE TISSUE, NEWCASTLE DISEASE VIRUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/0745

STEP NO--UR/0402/70/000/002/0150/0155

CIRC ACCESSION NO--AP0108951

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PROCESSING DATE--18SEP70

2/2 021

CIRC ACCESSION NO--AP0108951
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. PRETREATMENT WITH INTERFERON OF HUMAN AND CHICKEN LEUKOCYTES, FIBROBLASTS OF SKIN MUSCLE TISSUE OF HUMAN AND CHICK EMBRYO, HUMAN AMNION AND CHORIO ALLANTOIC MEMBRANE OF CHICK EMBRYO RESULTS IN STIMULATION AND EARLIER START OF SUBSEQUENT INTERFERON PRODUCTION IN THESE TISSUES. TREATMENT OF TISSUES SUPPORTING MULTIPLICATION OF THE VIRUS INDUCER (NEWCASTLE DISEASE VIRUS) WITH LARGE DOSES OF INTERFERON CAUSED INHIBITION OF INTERFEROGENESIS IN THEM, WHILE SMALL DOSES RESULTED IN STIMULATION OF INTERFEROGENESIS. CELLS NOT SUPPORTING VIRUS MULTIPLICATION RESPONDED BY STIMULATION OF INTERFERON PRODUCTION TO TREATMENT WITH BOTH LARGE AND SMALL DOSES OF INTERFERON. THE STIMULATING EFFECT REACHED MAXIMUM AT 2 HOURS AND DISAPPEARED AT 24 HOURS. THE PROCESS OF STIMULATION AND INHIBITION OF INTERFERON AND PRODUCTION IS SPECIES SPECIFIC. ENHANCEMENT OF INTERFEROGENESIS WAS ALSO OBSERVED AFTER PRETREATMENT OF THE TISSUES WITH SMALL DOSES OF THE VIRUS INDUCER.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--DISORDERS OF INTRAUTERINE DEVELOPMENT OF MICE UPON INOCULATION OF
PREGNANT FEMALES WITH COXSACKIE VIRUSES -U-
AUTHOR-(03)-SOLOVYEV, V.D., KHESIN, YA.YE., GUTMAN, N.R.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 1, PP 60-67
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--COXSACKIE B VIRUS, EMBRYOLOGY, MOUSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/1943

STEP NO--UR/0402/70/000/001/0060/0067

CIRC ACCESSION NO--AP0103670

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103670

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PREGNANT MICE WERE INOCULATED INTRAVENOUSLY WITH LARGE DOSES OF HIGHLY PATHOGENIC STRAINS OF COXSACKIE B3 AND A6 VIRUSES ON THE FIRST 4 TO 10 DAYS OF PREGNANCY. PATHOLOGICAL DEVELOPMENT OF EMBRYOS WAS OBSERVED IN 20 TO 25PERCENT OF THE FEMALES. IN INFECTION WITH COXSACKIE B3 VIRUS ON THE 4 TO 7TH DAYS OF PREGNANCY, THE VIRUS FREQUENTLY AFFECTED THE PLACENTA BUT IN A NUMBER OF CASES INVOLVEMENT OF TISSUES OF THE EMBRYO WAS OBSERVED WITH THE PLACENTA EXTERNALLY APPEARING INTACT. INOCULATION OF THE 7 TO 10TH DAYS OF PREGNANCY WAS NOT ACCOMPANIED BY ANY CHANGES IN THE EMBRYO TISSUE; THE INFECTION WAS MANIFESTED POSTNATALLY. THE VIRUS WAS ISOLATED ONLY FROM 2 OUT OF 60 EMBRYOS EXAMINED. AFTER INOCULATION WITH COXSACKIE A6 VIRUS EARLY IN PREGNANCY NO INVOLVEMENT OF THE EMBRYO WITH INTACT PLACENTA WAS OBSERVED. INOCULATION ON THE 7 TO 10TH DAYS OF PREGNANCY FREQUENTLY RESULTED IN DEVELOPMENT OF CHARACTERISTIC CHANGES IN THE DEVELOPING SKELETAL MUSCLES. IN 13.1PERCENT OF FEMALES MISCARRIAGES AND STILLBIRTHS WERE OBSERVED. IN INFECTIONS WITH BOTH VIRUSES THE TIME OF APPEARANCE OF CHANGES IN EMBRYOS COINCIDED WITH THE TIME OF MAXIMUM ACCUMULATION OF THE VIRUS IN THE BLOOD OF MOTHERS. NEWBORN MICE WERE FOUND INFECTED IN 100PERCENT OF CASES AND DIED ON THE 2 TO 5TH DAYS OF LIFE. A CORRELATION WAS FOUND BETWEEN THE TIME OF APPEARANCE OF ANTIBODY IN THE BLOOD OF MOTHERS, THE PRESENCE OF THE VIRUS IN EMBRYO TISSUES AND THE DEGREE OF AFFECTION OF EMBRYO TISSUES AND FETUSES.

UNCLASSIFIED

USSR

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SOLOV'YEV, V. D., KOBRINSKIY, G. D., DOMARADSKIY, I. V., LAVRUSHKO, V. S.,
LOBANOV, V. V., BICHUL', K. G., GAL'TSEVA, G. V., RASEUDOV, and PUSHNITSA, N. P.,
Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical
Sciences USSR, and Rostov-on-Don Antiplague Institute.

"Effect on Erythrocytes of the Receptor-Destroying Enzyme from Filtrates of
Cholera Vibrio Cultures"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972,
pp 42-46

Abstract: Erythrocytes treated with filtrates of cholera vibrio cultures lose
their capacity for agglutination by certain viruses. The authors studied this
phenomenon of the "receptor-destroying enzyme" (neuraminidase) to determine
the possibility of using it as an aid in diagnosing cholera. In in vitro exper-
iments with guinea pig erythrocytes, filtrates of classic NAG, and El Tor
vibrio cultures prevented the cells from being agglutinated by swine influenza
virus, whereas filtrates of the control cultures (Comamonas, Pseudomonas, and
E. coli) did not do so. The same effect was observed in the case of erythrocytes
from the intestinal contents of suckling rabbits infected with various cholera
vibrio strains. An investigation of the intestinal contents of 279 patients
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USSR

SOLOV'YEV, V. D., Zhurnal Mikrobiologii, Epidemiologii i Immunologii, No 10, 1972, pp 42-46

suffering from gastritis, dysentery, and other gastrointestinal disorders with symptoms resembling those produced by El Tor cholera showed that the hemagglutination reaction was negative in 94% of those over 1 year of age and in 46% of the infants.

2/2

- 29 -

USSR

UDC 621.385.623.4:621.3.019.3

GRISHAYEV, I.A., SKOLOV, V.D., MARTYNOV, A.I.

"Simple Method Of Forecasting Breakdowns Of Power Amplifier Klystrons"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 12, pp 126-130 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A164)

Translation: On the basis of an analysis of data from the exploitation of a group of devices, a simple and operative method is proposed for individual prediction of breakdowns of power amplifier klystrons, utilizing little more than data of plant tests reflected in the descriptive documents of devices. The method was checked on 60 devices disabled because of emission loss, and in 75 percent of the cases gave an accurate forecast. 3 ref. Summary.

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USSR

UDC 669.15.018.8.539.42.669.4

GAVZE, M. N., ~~SOKOLOV~~, V. D., and DZHRINSKAYA, YE. G.

"Effect of Lead Melt on the Character of the Failure of Some Brands of Alloyed Boiler Steel"

Vliyaniye rasplava svintsa na kharakter razrusheniya nekotorykh narok legirovannoy kotel'noy stali (cf. English above. Institute of Metallurgy, Academy of Sciences USSR), Moscow, 1970, 9 pp, ill., bibliography with seven titles (no 2361-70 Dep.) (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3I611 DEP by authors)

Translation: The article states the fundamental principles of the rational selection of alloyed steel for refining boilers and describes results of a study of the brittle failure of steel under the action of a melt of partially refined Pb. It is shown that the risk of this phenomenon can be significantly lessened by complex alloying.

1/1

- 13 -

USSR

UDC 620.10

NIKITENKO, V. I., Engineer, and SOKOLOV, V. F., Candidate of Technical Sciences

"A Numerical Method for Calculating the Natural and Forced Oscillations of Composite Shell Structures"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy--Mashinostroyeniye, No 10, 1973, pp 14-19

Abstract: A procedure has been worked out for numerical determination of the natural frequencies and the vibrational modes, as well as the forced motions of thin-walled shells of arbitrary shape and composite structures. The solution is an approximate one, and is based upon expansion of the determinant of a matrix equation with respect to the curvature along the generatrix into a series in terms of the powers of a small parameter. The principal advantage of the obtained solution is the absence of a single-valued relation between the number of finite elements of the calculation scheme and the number of degrees of freedom of a continuous system that are taken into account. 3 figures. 4 references.

1/1

- 100 -

USSR

UDC 656.259.2

BERZIN, M.A., GIZDEU, V.V., LAZARENKO, YU. V., LAZER, V.S., OSTASHKOV, YE.G.,
PLAVNIK, YA. YU., and SOKOLOV, V.F., Design Office of the Main Administration
of Signaling and Communication, Ministry of Railroads

"A Device for Monitoring a Locomotive's Transit of Block Section Boundaries"

USSR Authors' Certificate No 297522, Cl. B 61 1 3/20; B 61 1/03, filed 12
Sep 69, published 20 May 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'
naya Tekhnika, No 1, Jan 72, Abstract No 1A503E)

Translation: A device is suggested for monitoring a locomotive's transit of
block section boundaries. It contains locomotive pick-up coils connected via
a filter to an amplifier input, a rectifier unit whose input is connected to
the amplifier output, OR circuits, a flip-flop, and an actuating unit. For
purposes of simplification the device contains code separation units, the out-
put of the rectifier unit being connected to the inputs of the code separation
units, with the outputs of the code separation units connected to the inputs
of the corresponding OR circuits, the outputs of the OR circuits connected
to the flip-flop inputs, and the flip-flop output connected to the actuating
unit input. 2 illustrations.

1/1

USSR

UDC 620.10

KLYUYEV, Yu. I., Engineer, SOKOLOV, V. F., Candidate of Technical Sciences

"Determination of the Natural Frequencies and Forms of Oscillation of Shells of Revolution by Means of Matrix Series"

Moscow, Izvestiya Vysshykh Uchebnykh Zavendeniy, Mashinostroyeniye, No 12, 1970, pp 29-36

Abstract: The article deals with determination of the natural frequencies and forms of rotation of cylindrical, conical, and spherical shells with various conditions of fastening. The solution is developed on the basis of equations of the linear theory of shells with the use of matrix series. Consideration is given to variants of the construction of a single numerical algorithm, and recommendations are given on the use of these variants, depending upon the relative length of the shell. It is shown that determination of the frequencies and forms of oscillation of the shells for various variants of uniform boundary conditions is reduced to the solution of only one equation. The results of the conducted calculations are illustrated by graphs. 4 figures, 7 bibliographic entries.

1/1

- 133 -

USSR

UDC 681.3.001.518.5

SOKOLGV, V.F.

"The SIRIUS Problem-Oriented Algorithmic Language"

Avtomatiz. Operatsiy Proyektir. Protssesov Mashinostr. [Automation of Operations of Planning of Machine-Building Processes -- Collection of Works], Moscow, Nauka Press, 1970, pp 11-21 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 4, 1971, Abstract No. 4B93 by NV).

Translation: The principles of design of the "SIRIUS" algorithmic language are described. The language allows coding of a large number of versions of determination of standard geometric objects; provides for the performance of arithmetic, logic, vector, and geometric expressions and cyclical operations and combinations; and intersection and cutoff of component geometric objects. 1 fig., 6 biblio refs.

1/1

- 42 -

172 009 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--THE DEVELOPMENT AND INTRODUCTION OF ELECTRONIC COMPUTING EQUIPMENT
IN RAILROAD TRANSPORT -U-
AUTHOR--(04)-LEMESHCHUK, P.K., SOKOLOV, V.F., DELRID, B., FROLOV, V.YA.
COUNTRY OF INFO--USSR
SOURCE--MOSCON, ZHELEZNODOROZHNYI TRANSPORT, NO 2, FEB 70, PP 42-48
DATE PUBLISHED----FEB70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--COMPUTER APPLICATION, AUTOMATIC CONTROL SYSTEM, RAILWAY
TRANSPORTATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/1444 STEP NO--UR/0232/70/000/002/0042/0048
CIRC ACCESSION NO--AP0107892
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107892

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE IS THE SECOND PART OF A TWO PART TREATMENT OF DEVELOPMENTS IN THE UTILIZATION OF ELECTRONIC COMPUTERS AND RELATED EQUIPMENT IN THE USSR RAILROAD SYSTEM. THE FOLLOWING SUBJECTS ARE DISCUSSED: CREATION OF A LONG DISTANCE DATA TRANSMISSION NETWORK; THE AUTOMATIC READING OF INFORMATION FROM MOVING ROLLING STOCK; THE "AVTODISPETCHER" SYSTEMS FOR THE DIRECT CONTROL OF STATIONS AND SECTIONS; THE "EKSPRESS" SYSTEM FOR THE AUTOMATION OF PRODUCTION PROCESSES CONNECTED WITH SPACE RESERVATION AND THE SALE OF TICKETS, ETC., FOR LONG DISTANCE PASSENGER TRAINS; THE LEMESHCHUK, P. K., ET AL., ZHELEZNODOROZHNYI TRANSPORT, NO 2, FEB 70, PP 42-48 SOFTWARE FOR A SYSTEM FOR THE AUTOMATED CONTROL OF THE TRANSPORTATION PROCESS; THE REQUIREMENTS IMPOSED ON COMPUTING EQUIPMENT; AND THE TRAINING OF PERSONNEL.

UNCLASSIFIED

1/2 021
UNCLASSIFIED
PROCESSING DATE--11SEP79
TITLE--THE DEVELOPMENT AND INTRODUCTION OF ELECTRONIC COMPUTING EQUIPMENT
-U-
AUTHOR--LEMESHCHUK, P.K., SOKOLOV, V.F., DELRIO, B., FROLOV, V.YA.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, ZHELEZNODOROZHNYI TRANSPORT, NO 1, JAN 70, PP 40-47
DATE PUBLISHED----JAN70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., MECH., IND., CIVIL AND
MARINE ENGR
TOPIC TAGS--COMPUTER APPLICATION, RAILWAY NETWORK, DIGITAL COMPUTER,
COMPUTER CENTER, COMPUTER TECHNOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/0063 STEP NO--UR/0232/70/000/001/0040/0047
CIRC ACCESSION NO--AP0108431
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PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0108431

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE IS THE FIRST PART OF A TWO PART TREATMENT OF DEVELOPMENTS IN THE UTILIZATION OF ELECTRONIC COMPUTERS AND RELATED EQUIPMENT IN THE USSR RAILROAD SYSTEM. AFTER AN INTRODUCTORY PORTION, IN WHICH THE AUTHORS MENTION, AMONG OTHER THINGS, THAT THERE ARE PRESENTLY MORE THAN 30 ELECTRONIC DIGITAL COMPUTERS IN OPERATION ON SOVIET RAILROADS, THE ARTICLE IS DIVIDED INTO THE FOLLOWING SELFEXPLANATORY SECTIONS: THE DIRECTION OF THE USE OF ELECTRONIC DIGITAL COMPUTERS IN TRANSPORTATION; RAILROAD COMPUTER CENTERS; INFORMATION AND PLANNING SYSTEMS; PARENTHESIS AND PARENTHESIS THE MAIN COMPUTER CENTER OF THE MINISTRY OF RAILWAYS.

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UNCLASSIFIED

Acc. Nr: **AP0043797**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp 730-738

ON THE THEORY OF QUANTUM ELECTROMAGNETIC WAVES
IN METALS IN A MAGNETIC FIELD

E. A. Kaner, O. I. Lyubimov, V. G. Skobov

Coupled longitudinal and transverse quantum electromagnetic waves in metals located in a strong magnetic field are investigated. It is shown that the waves, whose velocity is close to the helicon phase velocity, are elliptically polarized in a plane perpendicular to the constant magnetic field. Waves whose velocity significantly differs from that of the helicon are longitudinal and their electric vector is polarized along the wave vector. Explicit expressions for the velocity dispersion of the waves are derived for slow waves.

REEL/FRAME
19770206

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Antennas

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UDC 621.396, 677.001.5

KORSI, L.V., BEKLOV, V.G.

"Solution Of The Problem Of The Synthesis Of Isotropic Radiators By The Method Of Quadratic Programming"

Radiotekhnika i elektronika, Vol XVII, No 3, March 1972, pp 463-470

Abstract: An effective method of synthesis of a system of isotropic radiators is proposed. The method of a projected gradient is used to optimize the algorithm. Solutions of composite and phase synthesis of an array of radiators are obtained by this method. On the average, a solution of the problem of phase synthesis was achieved by 100 integrations which amounted to 5-7 minutes of computation on the BESM-6 computer. However, the directional diagram obtained at the 20th step differed very little from the final step. With machine execution the proposed method does not require a large volume of internal storage. For the computations at each step, only those arrays were used which were proportional to the number of radiators and not to the square of the number of radiators. In principle, two-dimensional arrays consisting of several thousands of elements can be synthesized on the BESM-6. 7 fig. 5 ref. Received by editors, 5 Feb 1971.

1/1

USSR

UDC 669.861.5.864.018.58(088.8)

NIKELOV, K. P., YELUTIN, O. P., NIKITIN, S. A., PSHECHENKOVA, G. V., SOKOLOV, V. I., TARTYNOV, V. P. [Central Scientific Research Institute for Ferrous Metallurgy imeni Bardin, Moscow University]

"A Magnetic Alloy"

USSR Author's Certificate No. 276424, Filed 21/04/69, Published 16/10/70.
(Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5, 1760P).

Translation: The alloy contains Er 40-80%, Ly 20-60%, and differs from earlier known alloys in its higher values of saturation magnetism (28,500-32,800 gauss) at cryogenic temperatures.

1/1

USSR

UDC 621.923.019:620.192.4

CHERNYSHEV, N. A., Candidate of Technical Sciences, and SOKOLOV,
V. I.

"Change in the Structure of Hard Alloys During Grinding"

Mashinostroitel', No 4, Apr 71, pp 36

Abstract: Experiments involving grinding of plates with a diamond grinding disk made of ASO synthetic diamond in an experimental metallic binder indicated that when hard alloys are ground with rapid transverse feed, the cutting forces P_y and

P_z increase, significantly increasing the depth of structural

changes. This leads to a change in the operational characteristics when the hard alloys are used as cutting tools. The hard alloy used in the experiment was type TLAKS.

1/1

USSR

SOKOLOV, V. I., ZHESTEREV, V. I., Candidate of Biological Sciences, SERGEYEV, V. A., Doctor of Biological Sciences, TETERINA, A. V., Candidate of Biological Sciences, and KADETOV, V. N., All Union Scientific Research Institute of Veterinary Virology and Microbiology

"Automated Apparatus for Laboratory Cultivation of Animal Cells in Suspension"

Moscow, Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokhozyaystvennykh Nauk imeni V. I. Lenina, No 8, 1971, pp 40-42

Abstract: An automatically monitored apparatus in which suspensions of animal cells can be cultivated according to all known techniques was designed and built. The apparatus consists of four units: a cultivation block, a gas supply system, a cooling chamber, and a control and recording panel. The cultivation block is a thermostatically controlled water container in which flasks of various sizes and shapes are immersed half-way. Rods, tubes, and needles installed in air-tight stoppers facilitate addition and withdrawal of cells and reagents as well as recording of various parameters. Cells are introduced by means of compressed air and sampled using a vacuum. In the gas supply system, tanks with various gases are attached to a control pannel which selects the appropriate gas and controls its flow between 2
1/2

USSR

SOKOLOV, V. I., et al., Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokh-
ozyaystvennykh Nauk imeni V. I. Lenina, No 8, 1971, pp 40-42

and 60 liters per hour. Temperature, pH, and other parameters are automati-
cally adjusted and recorded. Optical density of the cell suspension is also
recorded. Prior to each experiment, the apparatus must be thoroughly washed,
sterilized, assembled, and calibrated. This takes 2.5-3 hours, which are
subsequently more than regained through the automatic control. In test runs,
cell growth was better than in the older semi- and nonautomated apparatuses.

2/2

- 15 -

USSR

UDC 669.018.5.537.312.62

SOKOLOV, V. I.

"Some Problems in the Application and Metallurgy of Superconducting Materials"

Nauchn. Tr. N-i. i Proyechn. In-t Redkmet. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1971, Vol. 32, pp. 88-93. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I745 by the author).

Translation: The basic features of the use of superconducting materials are studied. The economic expediency of the use of these materials for the creation of superconducting magnets in various types of systems is emphasized. 1 fig; 2 biblio refs.

1/1

USSR

UDC: 537.312.62

SOKOLOV, V. I.

"Some Problems in the Use and Metallurgy of Superconducting Materials"

Nauchn. tr. N.-i. i proyekt. in-t redkomet. prom-sti (Scientific Works of the Scientific Research and Design Institute of the Rare Metals Industry), 1971, 32, pp 88-93 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D536)

Translation: Basic peculiarities in the use of superconducting materials are considered. The author emphasizes the economic advisability of using these materials for making superconductive magnetic systems for all kinds of purposes. It is shown that the metallurgy of superconductors is based on theory and practice in the production of bimetallic wires and bands. One illustration, bibliography of two titles. Resumé.

1/1

- 145 -

USSR

UDC: 537.312.62

KRAINSKIY, I. S., MAZOKHIN, S. S., SOKOLOV, V. I., SHCHEGOLEV, I. F., ENMAN, V. K.

"A Vacuum Installation for Making the Compound Nb_3Sn by a Continuous Method With Diffusion of Tin Into a Niobium Base From a Melt"

V sb. Probl. sverkhprovodyashchikh materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 124-130 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D540)

Translation: The article contains a constructive description of an installation designed for continuous production of a thin layer of Nb_3Sn compound on niobium stock (band, wire, cable) of considerable length as it is drawn through a bath with a melt of tin heated to 950-1050°C in a vacuum at a predetermined pulling rate. When the pulling rate is increased or the temperature of the molten tin is reduced, niobium stock covered with a thin layer of tin may be produced, the Nb_3Sn compound being produced by subsequent heat treatment. The installation provides a high vacuum, a wide range of pulling rates (0.72-570 m/hr) and controllable molten tin temperature, and can be used to study the effect of various factors on the critical characteristics of superconductors with Nb_3Sn compound. Critical characteristics are presented for the first experimental specimens of superconducting strip made on the installation. Four illustrations, one table, bibliography of four titles. Authors' abstract.

1/1

USSR

UDC 621.923.019:620.192.4

CHERNYSHEV, N. A., Candidate of Technical Sciences, and SOKOLOV,
V. I.

"Change in the Structure of Hard Alloys During Grinding"

Mashinostroitel', No 4, Apr 71, pp 36

Abstract: Experiments involving grinding of plates with a diamond grinding disk made of ASO synthetic diamond in an experimental metallic binder indicated that when hard alloys are ground with rapid transverse feed, the cutting forces P_y and

P_z increase, significantly increasing the depth of structural changes. This leads to a change in the operational characteristics when the hard alloys are used as cutting tools. The hard alloy used in the experiment was type T14K8.

1/1

USSR

BELOV, K. P., MILL, B. V., SOKOLOV, V. I., and KHIYEN, T. D., Moscow State University imeni M. V. Lomonosov

"Magnetic Properties of Cobalt-Containing Ferrite-Garnets"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 6, 1971, pp 1649-1653

Abstract: Measurements of the magnetic and magnetostrictive properties of polycrystalline substituted ferrite-garnets of the system $R_3Co_xFe_{5-2x}Ge_xO_{12}$ in which ions with $L \neq 0$ (L is inductance) can be present in each of the three magnetic sublattices of garnet are reported. The charge compositions in the garnet synthesis included Co_2O_3 , Fe_2O_3 , and GeO_2 , along with oxides of gadolinium, terbium, and dysprosium with purity not less than 99.99%. Excess GeO_2 (2-3%) was added to the charge to compensate for vaporization losses. In the temperature range 4.2 - 100°K and in magnetic fields up to 60 kilo-oersteds, data were obtained on the effect of the Co^{2+} concentration in rare-earth ferrite-garnets on the magnetic field intensity and the coercive force. It was shown that adding Co^{2+} to rare-earth ferrite-garnets leads to a sharp increase in the coercive force variant. An anomalous dependence of the magnetostriction of terbium ferrite-garnets on the field at high Co^{2+} concentrations was observed.

1/1

Rare Metals

USSR

UDC 669.018:669.017.538.23

BELOV, K. P., YELYUTIN, O. P., NIKITKIN, S. A., PSHECHENKOVA, G. V., SOKOLOV, V. I., and TARATYNOV, V. P., Moscow State University imeni M. V. Lomonosov and Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Magnetic Hysteresis of Rare-Earth Metals and Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1146-1150

Abstract: A study was made of the hysteresis loops of rare-earth metals and alloys which possess a magnetic structure of the ferromagnetic spiral type (Dy-Er and Ho-Er). Ingots of rare-earth metals with a purity of 99.5% were made in a vacuum-arc zone furnace with a nonconsumable tungsten electrode and a water-cooled copper hearth. Melting was done under argon at a pressure of 300-400 mm Hg in two passes with rotation of the ingots. Samples 2.5 mm in diameter and 28 mm long were machined from the ingots and vacuum annealed for 24 hours at a pressure of 10^{-3} mm Hg. The magnetic characteristics were obtained in a superconducting solenoid (50 kilooersted) at 4.2°K. In this field the hysteresis properties of gadolinium, terbium, dysprosium, holmium, 1/2

USSR

BELOV, K. P., et al, Fizika Metallov i Metallovedniye, Vol 30, No 6, Dec 70, pp 1146-1150

and erbium and alloys Dy-Er and Ho-Er were studied. A new type of hysteresis was observed in the alloys manifested by failure of the ferromagnetic spiral in a strong field. It was established that despite a vast magnetic anisotropy, cast samples of rare-earth metals and alloys, even under magnetization in a field of 50 kilooersted at 4.2°K, possess comparatively small values of the coercive force which does not exceed 10^3 oersted.

2/2

- 38 -

USSR

UDC 537.312.62+533.599

KRAINSKIY, I. S., MAZOKHIN, S. S., SOKOLOV, V. I., SHCHEGOLEV, I. F., and ENMAN, V. K.

"Vacuum Installation for Production of Nb_3Sn by Continuous Method by Diffusion of Tin in Niobium Base from Melt"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 124-130

Translation: A constructive description is presented of an installation in which a continuous process of formation of a thin layer of the compound Nb_3Sn on a niobium profile (strip, wire, cord) of great length is performed by drawing through a bath of melted tin at 950-1,050°C in a vacuum at a predetermined drawing rate. If the drawing rate is increased or the bath temperature is decreased, the installation can be used to produce a niobium shape coated with a thin layer of tin without formation of the compound Nb_3Sn , which is formed upon later heat treatment. The installation, which can produce a high vacuum and can provide a wide range of speeds (0.72-570m/hr) and an adjustable tin melt temperature, allows the study of the influence of various factors on the critical characteristics of superconductors of the compound Nb_3Sn to be performed.

Critical characteristics of this first experimental specimens of superconducting strip produced on the installation are presented.

1/1

1/2 023
UNCLASSIFIED
TITLE--SOME SPECIFIC CHARACTERISTICS OF HUMAN ENERGY CONSUMPTION DURING
THE SIMULATION OF MODIFIED GRAVITATION -U-
AUTHOR--(04)-YEREMIN, A.V., STEPANTSOV, V.I., SOKOLOV, V.I., TIKHONOV, M.A.
COUNTRY OF INFO--USSR
SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL. 4, JAN.-FEB. 1970, P.
41-45
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--GRAVITATION EFFECT, MEDICAL EXPERIMENT, HUMAN PHYSIOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1967
STEP NO--UR/0453/70/004/000/0041/0045
CIRC ACCESSION NO--AP0120610
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120610

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. STUDY OF THE ENERGY CONSUMPTION IN 4 MALE SUBJECTS DURING THE WALKING AT 4-4.5 KM-H AND RUNNING AT 9-9.5 KM-H ON A 'RUNNING LANE' WITH CONTROLLED MOTION. THE FORCE OF GRAVITY WAS MODIFIED DURING THE EXPERIMENTS BY RUBBER SHOCK ABSORBERS ATTACHED TO A GIRDLE ON THE SUBJECT AND PULLING DOWN TO THE PLANE OF THE LANE, OR BY CHANGING HIS POSITION WITH RESPECT TO THE FORCE OF GRAVITY VECTOR ON A SPECIAL 'PSEUDOGRAVITATION' STAND. IT IS FOUND THAT WALKING AND RUNNING REQUIRE MORE ENERGY IN A SUPINE POSITION THAN IN A VERTICAL POSITION EVEN WHEN THE LOADS ALONG THE HORIZONTAL AXIS OF THE BODY ARE EQUAL.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--VISCOSITY OF FUSED SILICATES CONTAINING IRON, MANGANESE, AND
CALCIUM OXIDES -U-
AUTHOR--(03)-SOKOLOV, V.I., POPEL, S.I., YESIN, O.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(4), 40-5
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--FLUID VISCOSITY, VISCOUS FLOW, SILICATE, IRON OXIDE, MANGANESE
OXIDE, CALCIUM OXIDE, ACTIVATION ENERGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0820 STEP NO--UR/0148/70/013/004/0040/0045
CIRC ACCESSION NO--AT0132910
UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--11DEC70
CINC ACCESSION NO--AT0132910
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. VISCOSITY MEASUREMENTS WERE PERFORMED FOR MELTS IN THE FEO-SIO SUB2, MNO-SIO SUB2, FEO-CAO-SIO SUB2, AND FEO-MNO-SIO SUB2 SYSTEMS, AS WELL AS FOR THE MELTS OF THE FEO-MNO-CAO-SIO SUB2 SYSTEM IN A CONTROLLED ATM. AND FOR A WIDE TEMP. RANGE. FROM THE TEMP. DEPENDENCE OF THE VISCOSITY, THE ACTIVATION ENERGY OF VISCOUS FLOW WAS DETD. FOR THE MN-SIO SUB2 SYSTEM, THE VISCOSITY OF THE MELTS IS CONSIDERABLY LESS THAN THE ONE DETD. BY THE COAXIAL CYLINDERS METHOD. WITH INCREASING SIO SUB2 CONTENT IN THE MNO-SIO SUB2 AND FEO-SIO SUB2 SYSTEMS, THE VISCOSITY INCREASES MONOTONICALLY AND IS SIMILAR TO 3 TIMES LARGER FOR THE MN SILICATES THAN IT IS FOR THE FE SILICATES. THE ACTIVATION ENERGY FOR VISCOUS FLOW FOR MNO-SIO SUB2 MELTS INCREASES IN A REGULAR FASHION WITH INCREASING SIO SUB2 CONTENT, WHICH CANNOT BE STATED FOR THE FEO-SIO SUB2 SYSTEM. AT A CONTENT OF LESS THAN 50PERCENT SIO SUB2, MONAT. ANIONS OF O IN THE FEO-SIO SUB2 MELTS ARE THE UNITS OF VISCOUS FLOW. THE MEASUREMENTS SHOWED THAT AT EQUAL SIO SUB2 CONTENT THE D. OF THE FEO-MNO-SIO SUB2 MELTS IS HIGHER THAN THE D. OF THE FEO-SIO SUB2 SYSTEM. IN 4-COMPONENT FEO-CAO-MNO-SIO SUB2 MELTS, THE PARTIAL SUBSTITUTION OF CAO AND FEO BY MNO ONLY HAS A SLIGHT EFFECT ON THE VISCOSITY, THE MAGNITUDE OF WHICH AT THE SAME SIO SUB2 CONCV. IS CLOSE TO ITS VALUES IN THE BINARY AND THE TERNARY SYSTEMS. FACILITY: URAL. POLITEKH. INST., SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ELECTROABSORPTION OF GALLIUM SELENIDE --U-
AUTHOR--(04)-GADZHIYEV, V.A., SOKOLOV, V.I., SUBASHIYEV, V.K., TAGIYEV,
B.K.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERO. TELA 1970, 12(5), 1350-4
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ABSORPTION SPECTRUM, GALLIUM SELENIDE, PHOTON, EXCITON,
IONIZATION, LIQUID NITROGEN, FORBIDDEN BAND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3009/0113 STEP NO--UR/0181/70/022/005/1350/1354
CIRC ACCESSION NO--AP0138978
UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70
 CIRC ACCESSION NO--AP0138978
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTROABSORPTION SPECTRUM OF
 GASE WAS INVESTIGATED AT 80, 295, 345, AND 395 DEGREES K IN FIELDS OF 5
 TIMES 10 PRIME 3 -2 TIMES 10 PRIME 4 V-CM. COMPARISON OF EXPTL. RESULTS
 WITH THE THEORETICAL EXPRESSION FOR THE 1ST HARMONIC ALPHA SUB1 OF A
 COMPLETE VARIATION OF THE ABSORPTION COEFF., $\Delta \alpha(H\Omega, F)$ EQUALS
 $\alpha(H\Omega, F) - \alpha(H\Omega, 0)$ ($H\Omega$ EQUALS PHOTON ENERGY,
 F EQUALS ELEC. FIELD) FOR THE CASE OF DIRECT ALLOWED TRANSITIONS WITHOUT
 ACCOUNTING FOR EXCITONS SHOWED A CONSIDERABLE DIFFERENCE BETWEEN THEM.
 THE EXPTL. DETD. ALPHA SUB1 IS MORE DEPENDENT ON TEMP. AND IT DECREASES
 WITH INCREASING ENERGY OF THE QUANTUM MORE RAPIDLY THAN PREDICTED BY THE
 THEORY. EXPTL. DATA CAN BE EXPLAINED IF IT IS ASSUMED THAT THE MAIN
 CONTRIBUTION TO ELECTRO ABSORPTION COMES FROM DECOMP. OF EXCITONS IN
 THE 2-DIMENSIONAL CASE. AT ROOM TEMP. THE ENERGY OF IONIZATION OF
 EXCITON E SUBEX EQUALS 67 MEV AND THE WIDTH OF THE FORBIDDEN BAND E
 SUBG EQUALS 2.036 MEV. AT LIQ. N TEMP. THE OBSD. SPECTRUM OF
 ELECTROABSORPTION IS RELATED TO DECOMP. OF EXCITON PEAKS. E SUBEX IS
 70 MEV AND E SUBG IS 2.131 MEV. FACILITY: INST. POLUPROV.,
 LENINGRAD, USSR.

1/2 010 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--IMIDAZOLE DERIVATIVES CONTAINING POTENTIALLY LABILE GROUPS AT THE N
ATOM. V. SYNTHESIS OF 2,BENZYLAMINO AND 2,DI-BENZYLAMINO-BENZIMIDAZOLES
AUTHOR--(03)-ZVEZDINA, E.A.; POZHARSKIY, A.F.; SOKOLOV, V.I.
COUNTRY OF INFO--USSR
SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (3), 419-21
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--IMIDAZOLE, BENZENE DERIVATIVE, AMINE, ORGANIC SYNTHESIS,
HETEROCYCLIC NITROGEN COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/C218 STEP NO--UR/0409/70/000/003/0419/0421
CIRC ACCESSION NO--AP0126006
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126006

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MIXT. OF 1.47 G I (R EQUALS ME, R PRIME1 EQUALS NH SUB2), 1.62 G PHCH SUB2 OH, AND 0.9 G KOH WAS HEATED (FLAME); AT 150DEGREES A STORMY REACTION OCCURRED. THE MIXT. WAS THEN HEATED TO 250DEGREES, AND KEPT 5 MIN AT 250DEGREES TO YIELD 100PERCENT I (R EQUALS ME, R PRIME1 EQUALS NHCH SUB2 PH), M. 167DEGREES (MEOH). SIMILARLY WERE OBTAINED THE FOLLOWING AS SHOWN ON MICROFICHE.

UNCLASSIFIED

1/2 021 UNCLASSIFIED
TITLE--DENSITY AND MOLAR VOLUME OF SLAGS -U- PROCESSING DATE--30OCT70
AUTHOR--(03)-SOKOLOV, V.I., POPEL, S.I., YESIN, O.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(2), 10-15
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--SLAG, VISCOSITY, SILICATE, HELIUM, SURFACE TENSION, SPECIFIC
DENSITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0723 STEP NO--UR/0148/70/013/002/0010/0015
CIRC ACCESSION NO--AT0121382
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0121382

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE D., VISCOSITY, AND SURFACE TENSION OF MELTS OF THE FeO-MnO-CAO-SiO_2 SYSTEM WERE DETD. FROM THE LIQUIDUS LINE TO 1680DEGREES IN AN ATM. OF HIGHLY PURE HE, TO REDEFINE EXISTING DATA AND TO OBTAIN NEW DATA. THE D. WAS DETD. FROM THE CHANGE IN THE MAX. PRESSURE IN THE HE BUBBLE. THE MELTS WERE PREPD. FROM CHEM. PURE REAGENTS. THE D. OF FeO AT 1400DEGREES, OF SiO_2 SUB2 AT 1760DEGREES, AND OF MnO AT 1850DEGREES WERE 4.8, 2.07, AND 4.60 G-CM PRIME3, RESP. THE D. OF MnO , AS WELL AS THAT OF MnO-SiO_2 SUB2 MELTS, HAS NOT BEEN DETD. PREVIOUSLY. THE PARTIAL MOLAR VOLS. OF THE COMPONENTS IN FeO-SiO_2 SUB2 AND CAO-SiO_2 SUB2 MELTS ARE PRACTICALLY CONST. WITHIN A WIDE CONC. RANGE, AND ONLY NEAR THE ORTHOSILICATE COMP. DO THEY UNDERGO CHANGES. DESPITE THE PRESENCE OF OTHER COMPS. IN THE SAMPLES, THE MIXING OF ORTHOSILICATES WITH PURE OXIDES AT THE EXPTL. TEMP. PROCEEDS WITHOUT MARKED CHANGE IN VOL.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--INSTANCE OF PROTON ELIMINATION FROM A HOMOMERCURIUM ION -U-
AUTHOR--(03)--SOKOLOV, V.I., BASHILOV, V.V., REUTOV, D.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(4), 883-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--NUCLEAR MAGNETIC RESONANCE, SPECTROSCOPIC ANALYSIS, BENZENE
DERIVATIVE, CYCLOPROPANE, ORGANOMERCURY COMPOUND, FLUORINATED ORGANIC
COMPOUND, CHEMICAL REACTION MECHANISM, CHEMICAL SYNTHESIS
CENTRGL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/2160 STEP NO--UR/0366/70/006/004/0883/0884
CIRC ACCESSION NO--AP0125743
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125743

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TREATMENT OF
1,1-DIPHENYLCYCLOPROPANE WITH (F SUB3 CCO SUB2) SUB2 HG IN MECH GAVE PH
SUB2 C:CHCH SUB2 HGO SUB2 CCF SUB3 (I) IDENTIFIED BY NMR SPECTROSCOPY,
BUT NOT ISOLATED. TREATMENT OF I WITH EXCESS IODINE GAVE PH SUB2 C:CHCH
SUB2 I. THE MECHANISM OF I FORMATION INVOLVES THE ELIMINATION OF A
PROTON FROM THE INTERMEDIATE "HGMOMERCURINIUM" ION.

UNCLASSIFIED

1/2 022
UNCLASSIFIED
TITLE--ELECTRIC STIMULATION OF THE DUODENUM IN THE DIAGNOSIS AND TREATMENT
OF CHRONIC PANCREATITIS -U-
AUTHOR--(03)-SOKOLOV, V.I., SMIRNOV, V.F., DRESHENKOV, M.M.
COUNTRY OF INFO--USSR
SOURCE--KHIRURGIYA, 1970, NR 2, PP 104-111
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DIAGNOSTIC METHODS, ELECTROPHYSIOLOGY, DUODENUM, PANCREAS,
BILE, SECRETION, ENZYME ACTIVITY, GALL BLADDER, COLON
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1983/1312
STEP NO--UR/0531/70/000/002/0104/0111
CIRC ACCESSION NO--AP0054196
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--19SEP70

CIRC ACCESSION NO--AP0054196

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REDUCED MOTORICITY OF THE DUODENUM IS ONE OF THE MAIN CHAINS IN THE PATHOGENESIS OF CHRONIC PANCREATITIS. IN CONDITIONS OF HYPOKINESIS OF THE INTESTINAL WALL THERE OCCUR PREREQUISITES FOR STASIS OF BILE AND PANCREATIC JUICE ABOVE THE ODDI'S SPHINCTER. ON THE OTHER HAND, DUODENAL HYPOTENSION CAUSES SECONDARY DILATATION OF THE SPHINCTER OF ODDI, THIS LEADING TO CONSTANT INFECTION OF THE DUCTS WITH ENZYME ACTIVE INTESTINAL CONTENTS. THUS, CHRONIC RECURRENT PANCREATITIS IS MAINTAINED. FOR THE TREATMENT OF HYPOKINETIC STATES OF THE DUODENUM IN 42 PATIENTS THE AUTHORS EMPLOYED ELECTRIC STIMULATION OF ITS MOTORICITY WITH A WEAK ELECTRIC DISCHARGE. ACTING UPON THE INTESTINAL PACEMAKER, SITUATED IN THE ZONE OF VATER'S PAPILLA, THE AUTHORS INTENSIFIED THE INTESTINAL MOTOR ACTIVITY IN PATIENTS WITH EARLY FUNCTIONAL STAGES OF CHRONIC PANCREATITIS, ATTAINING A POSITIVE CLINICAL EFFECT. THE TECHNIQUE OF ELECTRIC STIMULATION OF THE DUODENUM IS SIMPLE, SAFE, WELL TOLERATED BY PATIENTS AND MAY BE USED FOR NORMALIZATION OF THE MOTORICITY OF ALL INTESTINAL REGIONS. ELECTRIC STIMULATION IS DEEMED PERSPECTIVE IN THE TREATMENT OF POSTOPERATIVE PARESIS, FUNCTIONAL DUODENOSTASIS, DISKINESES, PANCREATOPATHIA, SOME FORMS OF NONCLACULOUS CHOLECYSTITIS, DUODENITIS AND PERSISTENT CHRONIC COLITIS.

UNCLASSIFIED

1/2 . 028
UNCLASSIFIED
PROCESSING DATE--18SEP70
TITLE--LINEAR LUMINESCENCE OF ALUMINUM DOPED SILICON CARBIDE -U-
AUTHOR--(03)-SOKOLOV, V.I., MAKAROV, V.V., MOKHOV, YE.N.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(1), 285-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS
TOPIC TAGS--LUMINESCENCE SPECTRUM, SILICON CARBIDE, CRYSTAL, DOPED ALLOY,
ALUMINUM CONTAINING ALLOY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1984/0223
CIRC ACCESSION NO--AP0055019
STEP NO--UR/0181/70/012/G01/0285/0286
UNCLASSIFIED

2/2 028

CIRC ACCESSION NO--AP0055019

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. LUMINESCENCE SPECTRA WERE INVESTIGATED BY USING A CAMERA OF 270 MM. FOR SMALL DS. OF ELECTRONIC CURRENT, WEAK LINES WERE OBSD. CHANGING INTO A CONTINUUM. WITH INCREASING C. D. TOTAL INTENSITY OF THE LUMINESCENCE INCREASES AND REDISTRIBUTION TAKES PLACE OF THE RELATIVE INTENSITIES OF THE MAX. WHICH INCREASES IN COMPARISON WITH THE BACKGROUND. PHOTOMICROGRAPHS ARE GIVEN OF THE SHORT WAVELENGTH PART OF THE LUMINESCENCE SPECTRUM OF CRYSTALS OF THE 6H MODIFICATION OF SIC AT MAX. D. OF EXCITATION AND AT 80DEGREESK.

UNCLASSIFIED

USSR

SKOK, V. I., and KYRYCHYNS'KYY, B. R., (Reviewers)

Lazery v Eksperyments y Klynyke (Lasers in Experimental and Clinical Conditions), by N. F. Gamaleya, Moscow, Meditsina, 1972, 231 pp

Kiev, Visnik Akademii Nauk Ukrayins'koy RSR, No 6, 1972, pp 108-110

Abstract: The book by N. F. Gamaleya covers a broad spectrum of problems on the use of lasers in medical and biological sciences. In an introduction, the author considers the biological effect of light in general on animals cells, and the application of coherent and monochromatic laser beams in medicine and biology. The next chapter presents a detailed review of developments in quantum electronics and lasers. A separate chapter is devoted to types of lasers, especially those used in medicine and biology, the techniques of measuring laser radiation, and innovations in the designing of units for medical applications. The author also describes safety measures used in working with lasers, as well as design principles of laser laboratories and laser surgical rooms. Existing medical laboratories devoted to the treatment of malignant tumors. Much space is given to the interaction of laser radiation with biochemical substances such as proteins and nucleic acids. The effect of laser beams on cells and intracellular structures is discussed at length, with emphasis on cytological and embryological experiments. In the same chapter the author presents his own results obtained with the use of

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USSR

SKOK, V. I., and KYRYCHYNS'KYY, B. R., Visnik Akademii Nauk Ukrayins'koy
RSR, No 6, 1972, pp 108-110

an argon laser in the study of cell structures. The longest chapter is devoted to the effect of laser radiation on different organs and cells, such as eyes, skin, nervous system, organs located in the chest and abdominal cavities, and others. The mechanism of laser radiation is analyzed to the greatest extent. Without a detailed understanding of this mechanism it would be impossible to apply laser radiation rationally in medical and biological fields. Clinical applications of lasers are based mainly on the author's own results, especially in ophthalmology. Therapy of malignant tumors in humans is also covered. The author also described results obtained in the treatment of cancer with laser beams at the Goldman Laboratory in the U.S. and at the Institute of Problems of Oncology, Academy of Sciences Ukrainian SSR. Some future applications of laser radiation in experiments and in clinical research are indicated at the end of the book. An extensive bibliography covers works appearing from 1960 to 1970.

2/2

- 119 -

USSR

UDC: 8.74

2

KIRILYUK, N. I., KVASOV, V. M., ZAYTSEV, N. G., SIRCHENKO,
A. G., SOKOLOV, V. K., KHRAMOV, G. V.

"Structure and Composition of the Set of Technical Facilities
of a Typical Automated Control System"

Kibernet. i vychisl. tekhn. Resp. mezhved. sb. (Cybernetics
and Computer Technology. Republic Interdepartmental Collec-
tion), 1971, vyp. 12, pp 41-54 (from RZh-Kibernetika, No 5,
May 73, abstract No 5V772 by the authors)

Translation: The paper deals with problems of selecting the
technical complex of a typical automated enterprise manage-
ment system which are of interest in the development and
introduction of control systems.

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- 109 -

USSR

UDC 535.39 : 539.238

SEMENENKO, L. V., SVITASHEV, K. K., SEMENENKO, A. I., and SOKOLOV, V. K.

"Ellipsometry of Absorbing Films"

Leningrad, Optika i Spektroskopiya, Vol 32, No 6, Jun 72, pp 1204-1210

Abstract: The article shows on the basis of reflection theory that the ellipsometry method can be used for the nondestructive measurement of the thickness (over a wide range) of light-absorbing films, particularly semiconductor films on dielectric substrates during operation in the visible or near-infrared region. As an example, results are given of a theoretical and experimental study of the use of the ellipsometric method to measure the thickness of a layer of single-crystal silicon on a silicon dioxide substrate. A diagram is given of the ellipsometer constructed by the authors for the purpose. The results obtained with the ellipsometer were compared with the thickness values obtained as a result of direct measurements with an MBI-11 microscope. It was found that the results obtained by the two methods coincide to within measurement errors.

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Waveguides

UDC: 621.372.855(088.8)

USSR

L'VOV, A. Ye., SOKOLOV, V. K.,

"A Coaxial Load"

USSR Author's Certificate No 263704, filed 12 Dec 68, published 15 Jun 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B175 P)

Translation: The proposed variable-phase coaxial load contains a shorting device and an absorbing ring device. The rings are made from various grades of ferrite. To obtain a given SWR, an additional ferrite ring has a sectoral cut. Two illustrations. Resumé.

USSR

UDC: 669.15'782'743'295-196

ZHIROMKIN, A. R., BURKANOV, A. G., RAYNES, L. S., BOROVIKOV, A. A., SOKO-
LOV, V. I., PERSIDSKAYA, L. V., GABERTSETTEL', A. I., TOLOCHIN, V. G.,
TARAPATIN, P. S., Leningrad Kirov Plant

"Graphitized Steel"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki,
No 12, Apr 72, Author's Certificate No 334272, Division C, filed 15 Sep 69,
published 30 Mar 72, p 104

Translation: This Author's Certificate introduces a graphitized steel
which contains carbon, silicon, manganese, titanium and iron. As a dis-
tinguishing feature of the patent, friction properties are improved by
adding copper and taking the components in the following proportions in
percent: carbon--1.3-1.5; silicon--1.3-1.6; manganese--0.3-0.5; copper--
1.2-1.6; titanium--0.25-0.4. Impurities are as follows (in percent):
sulfur--less than 0.03; phosphorus--less than 0.035; chromium--0.20;
nickel--less than 0.20; the remainder iron.

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- 54 -

USSR

UDC: 621.317.411

SOKOLOV, V. M.

"Theoretical Principles of the Method of Measuring the Tensor Permeability and Tensor Dielectric Constant of Gyrotropic Media"

Tr. VNII fiz.-tekhn. i radiotekhn. izmereniy (works of the All-Union Scientific Research Institute of Physicotechnical and Radio Engineering Measurements), 1970, vyp. 2(32), pp 178-219 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5A235)

Translation: An idealized model is used as a basis for studying electromagnetic processes in a cavity with polarization grating which contains a layer of gyrotropic material. An investigation is made of the way in which resonance curves depend on different components of the tensors of the dielectric constant and permeability of the material. Formulas are found for determining these components (except for ϵ_z and μ_z) from the resonance curves corresponding to two positions of the gyrotropic layer in the cavity. Ten illustrations, bibliography of six titles. Resumé.

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USSR

KOCHELAP, V. A., and SOKOLOV, V. N. (Institute of Semiconductors of the Ukrainian Academy of Sciences, Kiev)

"Theory of Phase Transitions in Multivalley Semiconductors"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, February 1974, pp 186-195

Abstract: The authors study the thermodynamic peculiarities in the transition of a cubic, multivalley semiconductor to a new anisotropic state with a changed energy spectrum of carries and deformed lattice; the transition results from deformation electron-phonon interaction. Temperature and carrier density are considered as thermodynamic variables. It is shown that in the case of two-valley states there occurs a second kind of phase transition. The fluctuations of the anisotropic deformation and inter-valley distribution of electrons near the phase transition point are considered. In the case of one-valley states the first kind of transition takes place.

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- 17 -

1/2 020
UNCLASSIFIED
PROCESSING DATE--11SEP70
TITLE--THE EMPLOYMENT OF RADIOISOTOPES IN THE COMPLEX DIAGNOSIS OF TUMORS
OF THE EYE AND ORBIT -U-
AUTHOR--DUBOVYY, YE.D., PAKHOMOVA, A.I., PANFILOVA, G.V., GORSKIY, L.A.,
SOKOLOV, V.N.
COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 3, PP 30-34

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIAGNOSTIC METHODS, MEDICAL NUCLEAR APPLICATION, TUMOR, EYE,
PHOSPHORUS ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/1690

STEP NO--UR/0241/70/015/003/0030/0034

ACCESSION NO--AP0101745

UNCLASSIFIED

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CIRC ACCESSION NO--AP0101745

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS EXAMINED 351 PATIENTS WITH TUMORS OF THE EYE AND ORBIT, OF THIS NUMBER 296 WERE OPERATED UPON. THE FIRST GROUP INCLUDED 174 PATIENTS WITH INTRACULAR TUMORS. THESE PATIENTS WERE EXAMINED WITH THE AID OF RADIOPHOSPHORUS. IN LOCALIZATION OF THE TUMOR ON THE CONJUNCTIVA AND SOLERA A COINCIDENCE OF THE RESULTS OF RADIOMETRIC INVESTIGATIONS WITH CLINICAL AND HISTOLOGICAL DATA WAS NOTED IN 90 PER CENT OF CASES, WHEREAS IN MALIGNANT MOLANOMA OF THE VASCULAR MEMBRANE AND CILIARY BODY, IN 83 PERCENT AND IN MALIGNANT TUMORS OF THE IRIS, IN 71 PER CENT OF CASES. IN LOCALIZATION OF TUMORS IN THE POSTERIOR REGION OF THE EYE TRANSCONJUNCTIVAL RADIOPHOSPHORUS DIAGNOSIS WAS CARRIED OUT. THE SECOND GROUP CONSISTED OF 122 PATIENTS WITH TUMORS AND TUMOR LIKE DISEASES OF THE ORBIT AND ADJACENT REGIONS. THIS GROUP OF PATIENTS WAS EXAMINED WITH THE AID OF P PRIME32, I PRIME131, DIP AND I PRIME125. A COINCIDENCE OF DATA OF RADIOISOTOPE DIAGNOSIS WITH THE RESULTS OF CLINICAL AND HISTOLOGICAL INVESTIGATIONS FOR BENIGN TUMORS WAS 89.4 PER CENT, FOR MALIGNANT, 86.6 PER CENT OF CASES.

UNCLASSIFIED

USSR

UDC 621.396.6-181.5

BYLOV, K. V., GLAZKOV, YU. B., OGANEZOV, R. KH., STOVEA, V. I., SOKOLOV, V. P.,
~~STRAKHOV, V. S.~~

"Utilization of 2T603 Crystals to Create Medium Power Film Hybrid Circuits"

Elektron. tekhnika. Nauch.-tekhn. sb. Poluprovodn. pribory (Electronic Engineering. Scientific and Technical Collection. Semiconductor Devices), 1970, vyp. 6 (56), pp 118-120 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10V189)

Translation: The structural design of a caseless version of a medium power semiconductor triode based on the series semiconductor triode type 2T603 of npn structure is described. Results are presented from measuring the thermal resistance when mounting the semiconductor triode on the backing of the micro-circuit by two methods -- soldering (with indirect pulse heating) and micro-welding. It is demonstrated that the most effective means of mounting the semiconductor triode on the backing is solder. The magnitude of the thermal resistance drops significantly on increasing the thermal conductivity of the backing material. There are 2 illustrations and 1 table.

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1/2 027 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CHELATE COMPOUNDS OF TITANIUM, ZIRCONIUM, AND TIN WITH SCHIFF BASES
-U-
AUTHOR--(03)-KOGAN, V.A., SOKOLOV, V.P., OSIPOV, O.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 322-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--MOLECULAR STRUCTURE, IR SPECTRUM, TITANIUM COMPOUND, ZIRCONIUM
COMPLEX, TIN COMPOUND, SCHIFF BASE, CHELATE COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--3002/1066 STEP NO--UR/0079/70/040/002/0322/0324
CIRC ACCESSION NO--AP0128493
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128493

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BIS(SALICYLAL)DICHLOROTITANIUM AND HEXYLAMINE IN HOT MEPM WITH A TRACE OF ACOH GAVE TICL SUB2. 2R PRIME2 WHERE HR PRIME2 EQUALS N,HEXYLSALICYLALDIMINE; SN AND ZR ANALUGS WERE PREPD. SIMILARLY FROM REACTION PRODUCTS OF SALICYLALDEHYDE (R PRIME3) AND SN OR ZR CHLORIDES, WHICH GAVE PPTS. OF COMPN. MCL SUB4.2R PRIME3, WHICH HEATED IN DECAHYDRONAPHTHALENE UNTIL HCL EVCLUTION HAD CEASED, GAVE THE APPROPRIATE CHELATES. THUS WERE OBTAINED TICL SUB2 R SUB2 PRIME1, SNCL SUB2 R SUB2 PRIME1, ZRCL SUB2 R SUB2 PRIME1 WHERE HR PRIME1 SALICYLIDENEANILINE, AND TICL SUB4.2HR PRIME1, TICL SUB4.2HR PRIME1 (PRIME15 N), CUR SUB2 PRIME1, TICL SUB4.2HR PRIME2 AND TICL SUB2.2R PRIME2. THUS NEW CHELATES OF HCL SUB2.2R TYPE WERE PREPD. AND THEIR STRUCTURE CONFIRMED BY IR SPECTRA. FACILITY: ROSTOV. GOS. UNIV., ROSTOV, USSR.

UNCLASSIFIED

USSR

UDC: 541.49-546.82-546.811-547.388

KOGAN, V.A., SOKOLOV, V.P., and OSIPOV, O.A., Rostov-on-Don State University,
Rostov, Ministry of Higher and Secondary Specialized Education RSFSR

"Complex Compounds of Titanium and Tin Tetrachlorides With Acetylacetonone Imines"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 833-838

Abstract: The authors synthesized and studied compounds of titanium and tin tetrachlorides with acetylacetonone arylimines (acetylacetonaniline, acetylacetonone-p-toluidine, acetylacetonone-p-nitroaniline) and acetylacetonone alkyylimines (acetylacetonone hexylimine, acetylacetonone dodecylimine). The composition of the resultant complex compounds was established and their electron and vibration absorption spectra were studied. It is suggested that molecular complexes with a metal-oxygen donor-acceptor bond are formed.

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- 38 -

Titanium

USSR

UDC 541.49 546.831 546.821 546.811

KOGAN, V. A., ~~SOKOLOV, V. R.~~, OSIPOV, O. A., Rostov State University, Rostov, Ministry of Higher and Secondary Specialized Education RSFSR

"Chelate Compounds of Titanium, Zirconium and Tin With Schiff Bases"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 2, Feb 70, pp 322-324

Abstract: The authors prepared coordination compounds of titanium with salicylal-n-hexylamine (R^2) and of zirconium and tin with salicylalaniline (R^1), with all compounds conforming to the composition $MeCl_2 \cdot 2(R-H)$ (R = Schiff bases). The chelate character of the resultant complexes was established by the method of IR spectroscopy.

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USSR

UDC: 533.95:537.84

SLAVIN, V. S., SOKOLOV, V. S.

"Closed Energy Cycle With MHD-Generator Using the T-Layer Effect"

Novosibirsk, Aerofiz. issledovaniya--sbornik (Aerophysical Research--collection of works), 1972, pp 76-78 (from RZh-Fizika, No 6, Jun 73, abstract No 6G63)

Translation: A thermodynamic analysis is made of a closed energy cycle with MHD generator using the T-layer effect. A generator of this kind is thought of as a limiting case of the MHD generator with laminar flow in which absolute separation of the functions of the working fluid -- the electrical conductor (electrically conductive T-layer) -- and the gas whose enthalpy is to be converted to electric energy becomes possible. Analysis showed that a power plant with MHD generator and a T-layer may have an efficiency of 50-60% if the gas at the reactor outlet has a temperature of 2000-2300°K and the mass fraction of the T-layer in the flow of working fluid is no greater than 5%.

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- 33 -

Biophysics

USSR

PASECHNIK, V. I. and SOKOLOV, V. S., Moscow State University

"Change in Permeability of Modified Bimolecular Phospholipid Membranes
Following Periodic Expansion"

Moscow, Biofizika, No 4, 1973, pp 655-660

Abstract: Changes in the impedance of modified bimolecular ox brain phospholipid membranes were studied after periodic alteration of the area of the membranes by application of 10^{-3} M dibarenyl mercury solution in ethyl alcohol. A fairly rapid change in the surface of the modified biomolecular phospholipid membranes caused them to expand and become more permeable. Variations in permeability were found to depend both on the properties of the membranes and on the voltage applied to them. The observed phenomenon is suggested as a model of primary acts of mechanoreception.

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USSR

UDC 621.385.006:658.274

SOKOLOV, V. S., SERGEYEV, V. I.

"AZ-5 Photoelectric Counter of Aerosol Particles"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue No 10, pp 92-100 (from RZh-Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A121)

Translation: The AZ-5 photoelectric counter of aerosol particles is intended for measurement of the concentration of dust particles with a diameter of 0.4 ± 10 micrometers in the air of industrial sites. The counter is portable, simple in operation, and economical, assuring the possibility of uninterrupted inspection of the cleanliness of the air in the ranges 0-1000, 0-3000, 0-10,000, 0-30,000, 0-100,000, and 0-300,000 particles/l, and the lines of batching inspection -- in the range of 0-250 particles/l. The analysis time for one liter of aerosol is 50 seconds. The electrical supply of the device is effected either from an a-c net with a 220 v (plus or minus 10%) of 50-60 Hz frequency, or a

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USSR

SOKOLOV, V. S., et al, Elektron. tekhnika. Nauchno-tekhn. sb.
Elektron. SVCh, 1970, Issue No 10, pp 92-100

source of 12 v ($11 \div 14$ v) d-c voltage. The power consumed is ≤ 30 w with supply from the a-c net and ≤ 20 w with supply by the d-c. The dimensions are 305 x 320 x 180 mm. The weight is 8 kg. During operation the counter practically does not require time for warmup. 4 ill., 4 ref. G.B.

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- 32 -

SOKOLOV, V. S.

AP0017412

280294 JPRS 49585

UDC 538.4

USSR

DEGTIAREV, L. M., ZAKLYAZ'NINSKIY, L. A., KURDYUTOV, S. P., SAMARSKIY, A. A.,
SOKOLOV, V. S., and FAVORSKIY A. P. (Inst. of Applied Mathematics, Academy of
Sciences USSR)

"Development of Finite Local Perturbations of Electrical Conductivity in a
Stream of Weakly Conducting Gas in a Magnetic Field"

Moscow, Teplofizika Vysokikh Temperatur, No 3, 1969, pp 471-478

Abstract: The feasibility of developing a T-layer (high temperature) of gas
from local, finite perturbations of electroconductivity introduced artificially
into a stationary stream of weakly conducting gas, together with the dynamics
of the perturbation is studied. The perturbation develops in the T-layer if
the MHD interaction parameter corresponding to the perturbation exceeds a critical
value, which can be less than unity. The development of the T-layer is found
to depend on the characteristics of the gas flow. The numerical analysis is
based on MHD equations, assuming that the electron, ion, and neutral components
of the medium are in thermodynamic equilibrium. Viscosity, Hall effect, and

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radiant heat transfer are ignored. The gas is a mixture of argon with 0.1% cesium. In the temperature range of 1500 to 7000 K the argon practically does not ionize, and because of the small quantity of cesium the gas is almost ideal, having an adiabatic index of 1.67 and molecular weight of 40. The specific resistance consists of terms due to neutral atom collisions and electron-ion collisions. The magnetic lines of force are axisymmetric. Two types of perturbation are distinguished: 1) density constant, pressure increased with temperature, and 2) density decreased and pressure constant. In the first case the perturbed zone enlarges; in the second, the flow remains continuous in velocity and pressure. The flow is supersonic. The two cases of perturbation are studied in a diverging channel (0.5 m to 1.7 m radii). The initial flow parameters were Mach number 1.5, temperature 2000 K, density 0.001 g/cm³, pressure 4 atm, velocity 1200 m/sec. The initial perturbation, 0.25 m wide, occurs at station x (radius) = 0.65 to 0.9 m; temperature varied from 2250 to 3500 K, and the Reynolds number from 0.01 to 0.15. Compression waves propagating across the flow do not restructure it. Conditions for development of decay of the T-layer are discussed. Features of the second case are contrasted with those of the first. Results indicate that a self-sustained T-layer can be induced by local perturbation. Critical values of parameters required to accomplish this are given. The authors thank A. N. Tikhonov, P. O. Volesevich, and Yu. P. Popov for discussions and valuable criticism. Orig. art. has 7 figs. and 10 refs.

19600782

USSR

UDC 669.293.5:293.296

MIKHEYEV, V. S., PUSTOVOYTOVA, T. G., SOPOLOV, V. S., and SHNERKEV, G. D.,
Moscow

"Strength and Plasticity of Ti-Nb-Zr Alloys at -196° and $+20^{\circ}$ C"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 4, Jul-Aug 70, pp 171-173

Abstract: The mechanical properties of Ti-Zr-Nb alloys with an increased content of Zr and Nb were investigated at -196° C and $+20^{\circ}$ C on specimens with a constant relation of Ti/Zr = 9/1, Nb contents between 1 and 30 at%, and Zr contents up to 10 at%. The alloys were composed of Ti, brand TC-110, with admixtures of Fe, Si, C, Cl, N₂, H₂, and the components iodine Zr and industrial Nb. The effect of Nb on the mechanical characteristics of the alloys at -196° C and $+20^{\circ}$ C shows a notable increase in strength and yield properties in the domains of α and β solid solutions. The most different values of strength and yield properties at -196° C were observed on alloys with structures of α and $(\alpha+\beta)$ solid solutions at 20 at% Nb; similar values were observed on the microstructures of β solid solutions which showed a brittle failure at tensile tests. Titanium alloys containing up to 3 at% of Nb and 9.9-9.7 at% Zr, with a tensile strength $\sigma = 114-129$ kg/mm² and $\delta = 9-13\%$, have the best combination of strength and plasticity.

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- 31 -

1/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--RELATION BETWEEN THE STABILITY CONSTANTS OF COMPLEXES CONTAINING
ANIONS AND THE NUCLEOPHILICITY PARAMETERS, H, OF THESE ANIONS -U-
AUTHOR--(02)-SHMIDT, V.S., SOKOLOV, V.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1208-10

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METAL COMPLEX COMPOUND, STABILITY CONSTANT, IRON COMPOUND,
URANIUM COMPOUND, INDIUM COMPOUND, CHROMIUM COMPLEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3008/0935

STEP NO--UR/0078/70/015/005/1208/1210

CIRC ACCESSION NO--AP0137963

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137963

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A LINEAR RELATION EXISTS BETWEEN LOG K (KEQUALS STABILITY CONST.) OF DONOR ACCEPTOR COMPLEXES AND H (THE NUCLEOPHILICITY PARAMETER) TO THE DONOR LIGAND. THE EXPTS. WERE PERFORMED ON 10 DONOR ACCEPTOR COMPELXES VARYING ONLY IN THE NATURE OF DONOR LIGAND. THIS SCALE OF H CAN BE USE TO PREDICT THE RELATIVE STABILITY OF DONOR ACCEPTOR COMPLEXES IN WHICH THE DONOR HAS DIFFERENT IONS. CURVES OF LOG K VS. H FOR SONE 1:1 COMPLEXES OF ANIONS (HALIDES, NO SUB3 PRIME NEGATIVE, SCN PRIME NEGATIVE, ACO PRIME NEGATIVE, CHLOROACETATE) WITH METAL CATIONS (FE PRIME3 POSITIVE, UO SUB2 PRIME2 POSITIVE, IN PRIME3 POSITIVE, CR PRIME3 POSITIVE, ETC.) ARE PRESENTED.

UNCLASSIFIED

USSR

UDC: [621.436:656].001.8

BAYKOV, B. P., ~~SOKOLOV, V. S.~~, SAMSONOV, Ye. P., KOSYAK, A. F.,
and BORDUKOV, V. T.

"Promising Developments in Trunk Diesels for Railroad, Marine,
and Heavy Truck Transportation"

Moscow, Izvestiya Akademii Nauk SSSR--Energetika i Transport, No.
4, 1971, pp 93-98

Abstract: In this qualitative analysis of improvements that could be made in diesels for transport, the authors point out that technical progress in this area requires improvement in aggregate power, economy, and reliability, with limited indices of weight and dimensions. The cylindrical power of diesels for a specified rpm is determined by the average effective pressure, the velocity of the piston, and the diameter of the cylinder. The need for improving the aggregate power has recently resulted in the appearance of V-shaped multicylinder models. For increased rpm, above 1500, a large number of V-shaped diesels of 6, 8, and 12 cylinders have been developed. The TsNIDI (Central Scientific Research Diesel

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USSR

UDC: [621.436:656].001.8

BAYKOV, B. P., et al, Izvestiya Akademii Nauk SSSR---Energetika i Transport, No. 4, 1971, pp 95-98

Institute) as well as several other organizations have conducted research in improving the pickup and adaptability of diesels, and work on the experimental 6ChN 15/18 engine with controllable turbo-compression has yielded a torque reserve of more than 1.8. At the present time, an urgent need has arisen for the manufacture of new trunk diesels with an aggregate power of up to 2500 effective horse power at 2000-2200 rpm for truck transportation, with an aggregate power of up to 8000 ehp at 1500 rpm for locomotive engines, and with an aggregate power of up to 25,000 to 30,000 ehp at 420-450 rpm for shipbuilding. This should be achieved in the next five-year plan, 1971-1975, for diesels. The diagram of projected diesel parameter values for the period of 1975-1980 is plotted.

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- 165 -

USSR

UDC /528.77:528.42/:/535.247:681.3/

SOKOLOV, V. S., PRONIN, B. V., and PRONINA, G. Ye.

"Method of Determining the Estimate of the Correlation Function of a Homogeneous Random Field of Optical Densities"

Moscow, Geodeziya i Kartografiya, No 8, Aug 72, pp 51-59

Abstract: A method developed by the authors of determining the optimum correlation function of the representation of areal topographic objects on aerial photographs is discussed, and a facility is described for automatically obtaining the selection and determination of the estimate of the correlation function. By this method, the photographic representation of objects of arbitrary configuration can be analyzed. Experimental results confirm the effectiveness of the method of random pair selection for obtaining the estimate of the correlation function of a heterogeneous random field of optical densities. Seven illustr., one table, two formulas, six biblio. refs.

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- 71 -

USSR

UDC 536.212

FRIDLENDER, B. A., NESHFOR, V. S., YERMAKOV, B. G., SONOLOV, V. V., State Institute of Applied Chemistry, Leningrad

"Temperature and Heat Conductivity of Pyrolytic Titanium and Niobium Carbides and Titanium Nitride at High Temperature"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol 24, No 2, Feb 73, pp 294-296.

Abstract: Results are presented from measurement of the temperature conductivity and calculation of heat conductivity of monolithic specimens of $\text{TiC}_{0.94}$, $\text{NbC}_{0.77}$ and $\text{TiN}_{0.94}$, produced by chemical gas-phase deposition, in the temperature range from 1500 to 2200-2400°C. The specimens of titanium and niobium carbide had large-crystal columnar dendritic microstructure, the long axes of the crystals oriented perpendicular to the surface of deposition. The specimens of titanium nitride had similar microstructure, but were not dendritic. The temperature and heat conductivities of TiC and NbC are significantly lower than that of TiN , resulting from the significantly lower electrical conductivity of the carbides and the correspondingly lower contribution of electron heat transport, with similar contributions of lattice heat transport.

1/1

- 69 -

SOKOLOV, V. V.

ECONOMICS

SO 7620 00509
19 MAY 1979

CONTROL
AUTOMATIC SYSTEM FOR CALCULATING, STORING AND READING INDICATIVES IN THE
NATIONAL ECONOMY

[Article by V. V. Sokolov, Candidate of Economic Sciences, Scientific Assistant,
Institute of Planning, Normatives of the USSR State Planning Committee, Moscow,
Sokolov V. V. (Moscow, Russian, No. 3, 1977, pp. 27-29)]

The objectives of the Twenty-Fourth Congress of the CPSU have aimed
the process of further improvement of the scientific basis for planning and
of them and deeper penetration of the process of scientific and technical
progress.

In the solution of these problems a large role is assigned to the creation
of the general state automated system for data collection and processing,
accounting, planning and control of the national economy on the basis of the
state system of computer centers and the integrated automated computer network
network of the country.

The practice of implementing the new economic reform has demonstrated
that it is impossible to set about without bringing order into the field of
standards and performance of scientifically based operations with respect to
economy of manpower, material and financial resources.

The normative information has important economic significance and correct
performance of the calculations of the plans for the national economy
and the basis for them depends on the reliability of this information.

An increase in the volumes of information used when developing the
national economic plans requires automation of the processes of formation and
processing of it.

In accordance with the instructions of the Central Committee of the
CPSU and the USSR Council of Ministers regarding the necessity for further
improvement of the technical-economic information, the USSR State Planning
Committee has developed new procedural principles for the organization of the
fixing of standards on raw materials and materials. Primary attention was
given here to the problems of using computers for normative data processing.

USSR

UDC: 621.373.531(088.8)

DAVIDOV, P. D., ~~SOKOLOV, V. V.~~

"A Square Pulse Generator"

USSR Author's Certificate No 259954, filed 11 Mar 66, published 28 Apr 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11Q177 P)

Translation: This Author's Certificate introduces a square pulse generator which contains a semiconductor switching diode, a transistor, a storage capacitor and two resistors. To improve the pulse shape, the switching diode, transistor and resistors are connected in a bridge circuit with the storage capacitor connected in one diagonal between the cathode of the semiconductor diode and the base of the transistor. The plates of the capacitor are connected through resistors to the negative terminal of the power supply, the positive terminal being connected to the tipoint between the anode of the semiconductor switching diode and the emitter of the transistor. The output load is connected in the collector circuit of the transistor.

1/1

- 41 -

USSR

UDC 621.762.001:669.296'784+295'784

DAVYDOV, V. S., YERMAKOV, B. G., and SOKOLOV, V. V.

"Technique of Producing, and Certain Properties of Pyrolytic Carbides of Zirconium and Titanium"

V sb. Tugoplavk. karbidy (The Refractory Carbides -- Collection of Works), Kiev, "Nauk. Dumka," 1970, pp 20-23 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G374 by authors)

Translation: An investigation is made of the conditions under which dense deposits, homogeneous in composition, of titanium and zirconium carbides are produced by the method of precipitation from a gaseous mixture. Optimum conditions are worked out for the processes of carbide precipitation from the gaseous phase containing vapor of a higher metal chloride, methane, and H₂. The authors consider the effect of various process parameters (temperature, composition of gaseous phase, consumption of vapor-and-gas mixture) on precipitation rate, structure, and chemical composition of the resultant carbides. Three illustrations. Two tables. Bibliography with five titles.

1/1

- 25 -

Miscellaneous

USSR

UDC 551.521.3

ZUYEV, V. YE., SOKOLOV, V. V., TVOROGOV, S. D.

"Calculating the Volumetric Coefficients of Radiation Attenuation by Water Clouds and Fogs in the 0.3-25 Micron Range"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 4, 1971, pp 73-77

Abstract: The volumetric coefficients of attenuation of radiation by water clouds and fogs in the 0.3-25 micron range are calculated. The particle size spectrum is described by the gamma distribution, the parameters of which vary within broad limits. The latest most exact and detailed data on the components of the complex index of refraction of water were used in the calculations.

The calculated coefficients are presented in a table, and the attenuation coefficients are plotted as functions of some defined values of the micro-structure parameters r (most probable particle radius) and μ (the characteristic of the distribution halfwidth). An error analysis is performed for the calculations.

1/2

ZUYEV, V. YE., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy-- Fizika, No 4, 1971, pp 73-77

The problem of the limiting optical thicknesses of clouds and fogs for which it is still possible to use the values of the attenuation coefficients obtained in estimating the measurable radiation attenuation by Bouguer's law is also investigated.

2/2

- 112 -

1/2 030 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--SUPERCONDUCTIVITY OF ZIRCONIUM NITRIDE SINGLE CRYSTALS -U-

AUTHOR--(03)-NESHFOR, V.S., NOVIKOV, V.I., SOKOLOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 425-8

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SUPERCONDUCTIVITY, ZIRCONIUM NITRIDE, SINGLE CRYSTAL,
SUPERCONDUCTING MATERIAL, CRYSTAL IMPURITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1824

STEP NO--UR/0363/70/006/003/0425/0428

CIRC ACCESSION NO--AP0118788

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118788

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINGLE CRYSTAL ZN NITRIDE SAMPLES OF THE COMPN. ZRN SUB0.95 GROWN BY CHEM. GAS PHASE DEPOSITION FROM A VAPOR GAS MIXT. N SUB2 PLUS ZRCL SUB4 PLUS H SUB2 UNDER THE CONDITIONS OF SLOW GAS STREAM RATE HAVE AN ACICULAR SHPAE WITH THE AXIS OF THE NEEDLE COINCIDING WITH THE (111) CRYSTALLOGRAPHIC DIRECTION. AT A PERFECT SURFACE SHAPE OF THE SAMPLE, A SHARP TRANSITION WAS DETD. FOR THEM INTO THE SUPERCONDUCTING STATE AT 9.6DEGREE SK. THE CRIT. MAGNETIC FIELD FOR THESE SAMPLES IS 2.5-3.0 KOE. FOR NONHOMOGENEOUS LENGTH AND IMPERFECT STRUCTURE OF THE SURFACE OF THE ZR NITRIDE CRYSTALS, THEIR TRANSITION INTO THE SUPERCONDUCTING STATE PROCEEDS AT A SOMEWHAT LOWER TEMP. THE T SUBC VALUE FOR ZR NITRIDE SINGLE CRYSTALS IS CLOSE TO THE CORRESPONDING T SUBC VALUE FOR POLYCRYST. SAMPLES OF THE SAME CHEM. COMPN. THE DISRUPTION OF THE SUPERCOND. BY A MAGNETIC FIELD TAKES PLACE OVER A WIDER FIELD STRENGTH INTERVAL FOR POLYCRYST. SAMPLES COMPARED TO SINGLE CRYSTALS. INVESTIGATION OF THE SINGLE CRYSTALS STUDIED BY ELECTRON MICROPROBE SHOWED THAT THEY DO NOT CONTAIN IMPURITIES OF THE FOLLOWING ELEMENTS: FE, MG, HF, TI, NB, W, AND SI. LOCALIZED IMPREGNATIONS OF CU, C, AND O, AND A CU CONTG. PHASE (ZR PLUS CU) WERE OBSD. AT THE SURFACE OF THE SAMPLES. THE LATTER INCLUSIONS WERE NOT PRESENT IN BULK OF THE SAMPLE. FACILITY: GOS. INST. PRIKL. KHIM., USSR.

UNCLASSIFIED

USSR

UDC 621.372.85(088.8)

S
SOKOLOV, V. V., ARTEMYEV, S. M., NOVOSELETS, V. I.

"Frequency Tuning Device"

USSR Author's Certificate No 259203, Filed 11 Oct 66, Published 17 Apr 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B154P)

Translation: The proposed frequency tuning device for vacuum volumetric resonators of superhigh frequency electronic devices contains a rod connected to a flexible resonator tuning element, for example, a diaphragm and an adjustment screw used for axial displacement of the rod. In order to improve the vibration resistance of the device, a smooth bushing with an inside thread encompassing the lower part of the two-step screw and attached inside the removable sectional housing is used. The upper part of the screw is turned into the auxiliary bushing equipped with a flange which is installed on the housing of the device. There are two illustrations.

1/1

USSR

UDC: 546.831'17:537.312.62

NESHPOR, V.S., NOVIKOV, V.I., SOKOLOV, V.V. State Institute of Applied Chemistry, Leningrad, State Committee for Chemistry; Institute of Semiconductors Leningrad, Academy of Sciences USSR

"Superconductivity of Zirconium Nitride Single Crystals"

Moscow, Neorganicheskiye Materialy, Vol 6, No 3, 1970, pp 425-428

Abstract: The superconductivity of zirconium nitride crystals produced by crystallization of the nitride from the gas phase was studied. X-ray diffraction phase analysis showed only one phase of cubic mononitride, with a lattice period of 4.612 Å. The crystals, with the composition $ZrN_{0.95}$, grown by chemical gas phase precipitation from a vapor-gas mixture ($N_2 + ZrCl_4 + H_2$) at low gas flow velocity were needle shaped with needle axis corresponding to the $\langle 111 \rangle$ crystallographic direction. A sharp transition to the superconducting state at 9.6°K was noted, and the critical magnetic field was 2.5-3.0 koe. With structural imperfections on the crystal surface, the transition to the superconducting state is at a somewhat lower temperature. The value of T_K for the single crystals is similar to the corresponding value for polycrystals of the same chemical composition. Disruption of superconductivity by a magnetic field occurs over a broader interval of intensities for the polycrystalline specimens than for the single crystals.

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USSR

UDC 621.373.826:53

GORDOV, Ye. P., VAYNSHTEYN, V. D., SOKOLOV, V. V., and
TVOROGOV, S. D.

"Some Problems in Quantum Statistical Optics and the Propagation of
Electromagnetic Waves"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
(Tenth All-Union Conference on the Propagation of Radio Waves;
Report Theses--collection of works) "Nauka," 1972, pp 184-186
(from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D387)

Translation: Results are given of the authors' solution to a series
of problems in the use of quantum statistical optics in the area of
electromagnetic wave propagation. Eigenfunctions of the electro-
magnetic field vector potential operator are introduced. A method
is proposed of statistical computation for measuring the field
density matrix as the field is propagated in the medium. The re-
presentation of the electromagnetic field in the form of the quan-
tum average of purely field operators is advanced. The change in
photon statistics for light propagated in a medium of weak non-
linearity and low absorption is assumed connected with the solution
for the corresponding problem in classical electrodynamics. A. K.
1/1

USSR

UDC 612.122:599.32

SOKOLOV, V. Ye., LEV, B. S., and KUZNETSOV, G. V., Institute of Evolutionary Morphology and Ecology of Animals imeni A. N. Severtsov

"Diurnal Rhythm of the Blood Sugar Level of Some Rodents"

Sverdlovsk, Ekologiya, No 6, 1971, pp 63-68

Abstract: Because of the lack of information on diurnal changes in blood sugar level in wild rodents, and because of contradictions in such information from laboratory experiments, analyses were made every 3 hours during 1 day on 37 field mice (*Apodemus agrarius*) 113 wood mice (*Apodemus sylvaticus*), 50 bank voles (*Clethrionomys glareolus*), and 59 brush voles (*Microtus majori*) in the summer of 1966 in the Western Caucasus at 700 meters in the forest zone and in the subalpine zone at 1,700 meters, and in Voronezhskiy Game Preserve in the summer of 1967. Blood sugar levels were higher at night than during the day for all mice, but differences were statistically insignificant for field and forest zone wood mice. Two maximums and 2 minimums were recorded for the voles, but differences were statistically insignificant. Fluctuations are small in brush voles at 1,700 meters, probably because of the polyphasic nature of their activity. Higher levels correlated with periods of higher activity in mice, while no such correlation was detected for the voles, probably because of irregularities in technique and polyphasic diurnal

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USSR

SOKOLOV, V. Ye., et al., Ekologiya, No 6, 1971, pp 63-68

activity. Blood sugar levels were higher at higher altitudes and in animals living farther north due to effects of lower temperature and less oxygen on metabolism. Pregnant field mice had higher levels than nonpregnant ones, probably due to increased energy expenditure for gestation. Differences in blood sugar levels between field mice and bank voles were probably minor because of similar dietary specializations and identical metabolic properties, while significant differences in these two attributes correlated with higher levels in brush voles than in bank voles. A study of seasonal changes for bank voles demonstrated the highest levels in fall, followed by decreases in winter, and insignificant increases in the spring, again correlating with metabolic changes. Thus diurnal and seasonal changes in blood sugar level of these rodents are biochemical adaptations that are closely connected with metabolic and activity rhythms.

2/2

- 76 -

Hydrobiology

USSR

UDC 591.173:599.536

SOKOLOV, V. YE., KOKSHAYSKIY, N. V., and RODIONOV, V. A.

"An Experiment on Transporting Porpoises and a Study of Their Swimming Behavior in an Experimental Tank"

Moscow, Byulleten' Moskovskogo Obshchestva Ispytateley Prirody, otdel Biologicheskii, Vol 76, No 4, Jul/Aug 71, pp 37-46

Abstract: A number of porpoises (*Phocaena phocaena*) were captured in the Black Sea and kept for two weeks in an open-air marine enclosure. Two adult males were flown to Moscow in an inflated rubber boat partly filled with sea water. The trip took 9 hours, with actual flying time of 4-1/2 hours, after which the mammals were kept in fresh water for 3 hours, and then released into a tank filled with fresh water. Because they were partly submerged in water, the porpoises tolerated air travel, accompanied by a drop in barometric pressure at an altitude of 1,800, quite well. They rapidly adjusted themselves to the test tank environment and to the various experimental conditions. Their behavior differed insignificantly from that in the open-air cage in the sea. Experiments were made with visualization of the flow of water around the swimming porpoises and in their wake by means of air bubbles and

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USSR

SOKOLOV, V. YE., et al., Byulleten' Moskovskogo Obshchestva Ispytateley Prirody, otdel Biologicheskiiy, Vol, 76, No 4, Jul/Aug 71, pp 37-46

polystyrene granules. More complex studies can apparently be carried out after special training methods have been developed, making it quite possible to obtain complete information on a dolphin's swimming hydrodynamics by direct observation of living specimens.

2/2

Hydrobiology

USSR

UDC 591.185.3

SOKOLOV, V. YE., Corresponding Member, Academy of Sciences USSR and KUZNETSOV, V. B.

"Chemoreception in the Black Sea Dolphin *Tursiops truncatus* Mont."

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 4, 19 Apr 71, pp 998-1000

Abstract: It is generally believed that cetaceans lack a sense of smell, although some young animals appear to have that ability. Histological studies conducted by the authors revealed that three kinds of dolphins possessed at the base of the tongue epithelium covering what appeared to be taste sensors -- three to nine formations at the most. It was also noted that the taste nerves were well developed, indicating that while there were apparently no receptors, fully developed central structures of taste and smell did exist. Chemoreceptive capabilities in dolphins were tested. A female Black Sea (*Tursiops truncatus*) was used as the test animal. It was trained to react in a different manner to various stimulants sprayed into its mouth: to throw a ball after receiving pure water, or to go to the feeding place after receiving a stimulant. In the first part of the test series, sea water and a solution of trimethylamine were used. Trimethylamine resembles in taste and smell the fishes on which dolphins feed most frequently. In the majority of tests, the animal

1/2

USSR

SOKOLOV, V. YE., et al., Doklady Akademii Nauk SSSR, Vol 201, No 4, 19 Apr 71, pp 998-1000

reacted correctly by swimming to the expected place and throwing the ball after receiving sea water, or waiting for the reward at the feeding place after receiving the chemical. The average decision time was 10.7 seconds after sea water, and 9 seconds after trimethylamine. In the second series, camphor and indole were added besides the trimethylamine. Results were again positive in between 74% to 77% of tests with the decision times averaging 12.4 seconds after receiving sea water, and between 7.9 and 8.9 seconds for stimulants. A surprising and unexpected phenomenon which occurred during this test was the ability of the dolphin to differentiate between stimuli breaking down after a certain number of tests, when the dolphin began reacting at random. A possible explanation which is suggested is the additional difficulty created by more than one active stimulus. Dogs are unable to react to situations of a similar complexity. Tests seem to indicate that dolphins possess abilities to detect by means of taste and/or smell the desirable stimuli, and also to differentiate between them. Indole was the most effective stimulus in that sense, with the average decision time reaching 3 to 4 seconds.

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1/2 010 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--EFFECT OF RARE EARTH METALS ON THE FLAKE SENSITIVITY OF ALLOY STEEL
-U-
AUTHOR--(05)-SERBIN, A.P., SKLYUYEV, P.V., SOKOLOV, V.YE., ROMANOV, A.A.,
FRIDMAN, A.YA.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 245
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--RARE EARTH METAL, NONMETALLIC INCLUSION, STEEL FLAKE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1981/0458 STEP NO--UR/0370/70/000/001/0245/0245